Editorial

Vaccine preventable diseases, vaccine hesitancy, and COVID-19: A role for the allergist/immunologist

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In previous issues of the ***Proceedings,*** several articles on coronavirus disease 2019 (COVID-19) were published in response to a national crisis that continues to be a focus for clinical research and manuscript submissions to the journal.[1–12] What was described as a war on infectious diseases,[1] COVID-19 has now become a war on vaccine hesitancy for which a clarion call is being sent to the nation for greater COVID-19 vaccine acceptance and for which the allergist/immunologist can continue to play a critical role in terminating this modern-day plague.[2] In this issue, COVID-19 vaccine hesitancy, vaccination strategies, and effects of COVID-19 on the clinical expressions of hereditary angioedema (HAE) and asthma are addressed. Bellanti[13] reviewed current COVID-19 vaccines, their mechanisms of action, and adverse reactions. He further explored the causes of vaccine hesitancy and suggests ways that the allergist/immunologist can promote vaccine acceptance to help in the control and ultimate elimination of the COVID-19 pandemic. The subject of adverse reactions to the first doses of COVID-19 vaccines is addressed in the report by Arroliga *et al.*,[14] which presented a systematic triage approach used by a large health-care corporation. With a panel of three American Board of Allergy-Immunology certified allergists, only 5 subjects of 113 (4.4%) reported reactions that were deemed severe enough to recommend not taking the second vaccine dose.[14] This report demonstrated that, by consideration of reaction history alone, first dose reactors can be appropriately triaged to receive scheduled second dosing of COVID-19 vaccines without delays for in-person evaluation and allergy testing.

In expanding the concept of vaccination beyond COVID-19, Frenkel[15] addressed the global burden of six vaccine-preventable infectious diseases (*Streptococcus pneumoniae*, rotavirus, *Bordetella pertussis*, measles virus, *Haemophilus influenzae* type b, and influenza virus) in children < 5 years of age. He highlighted how issues with regard to the burden of disease, mortality, disease transmission, and availability of vaccines as well as vaccine successes and shortcomings for specific pathogens can serve as important landmarks for effective use of future vaccines and can have implications for the prevention of COVID-19 infection in children.

The effects of COVID-19 on the clinical expressions of HAE are described in a report by Bostan *et al.*,[16] which demonstrated that the symptoms of COVID-19 were no more severe in HAE than in the general population. Also, there was no significant difference in the Angioedema Quality of Life scores, the frequency, and severity of angioedema attacks during the course of COVID-19 in patients with HAE.[16] In transitioning to the effects of COVID-19 on the clinical expressions of asthma, Arsenault et al[17] reported a sustained year of decreased emergency room visits for children with asthma in an pediatric emergency department of an inner city hospital. The authors explain that this seems to be secondary to school closure and decreased exposure to upper respiratory infections.

In continuing with the topic of asthma, Sarioglu *et al.*[18] performed a study of 384 patients with stable asthma and 87 controls that identified a high prevalence of vitamin D deficiency in adults with asthma who were living in different geographic regions of Turkey. The authors found that vitamin D deficiency was associated with asthma severity, poor control, and lower lung function. Zhu *et al.*[19] reported a cross-sectional study of the interaction effects of asthma and rhinitis control on work productivity and activity impairment that accounted for significant increases in presenteeism (*i.e.*, the lost productivity that occurs when employees are not fully functioning in the workplace), and activity impairment as well as a significant interaction effect of control levels that accounted for increased absenteeism. In a diagnostic asthma study, Xu *et al.*[20] reported on how bronchial provocation testing, measured by the forced oscillation technique, compared favorably with more established methods when using an aerosol provocation system dosimeter to assess airway hyperresponsiveness.

In transitioning from asthma to the type 2 co-morbidities frequently associated with asthma are separate reports from Spergel *et al.*[21] on the use of topical treatment with crisaborole (a phosphodiesterase-4 inhibitor) of patients with mild-to-moderate atopic dermatitis (AD)

and other atopic comorbidities, and, by Patel *et al.*,[22] on the effect of type-2 targeting biologics on acute exacerbations of chronic rhinosinusitis (70% with nasal polyps) in patients who required biologic therapy for asthma. The report by Spergel *et al.*[21] consisted of a *post hoc* pooled analysis of the crisaborole pivotal phase III studies that included 1522 patients, many of whom had atopic comorbidities (asthma, allergic rhinitis, or food allergies). Their analysis demonstrated that crisaborole was efficacious and well tolerated in patients with mild-to-moderate AD and other atopic comorbidities, which suggests that crisaborole should be considered for the management of AD in this population.

In a retrospective study of 165 patients with chronic rhinosinusitis who were undergoing treatment with one of five type-2 targeting biologics (either omalizumab, mepolizumab, benralizumab, dupilumab, or reslizumab), Patel *et al.*[22] found an association with a significantly decreased prescription rate for antibiotics and systemic corticosteroids, which suggests efficacy for patients with frequent exacerbations of chronic rhinosinusitis. Because of the importance of this reassuring information to patients, it was chosen as the basis for this issue's ***"For the Patient"*** section entitled "Impact of Treatment with Biologics on Acute Exacerbations of Chronic Rhinosinusitis." This segment, found in the final pages of the print version of this issue and also available online, consists of a one-page article synopsis written in a readily comprehensible fashion to help patients better understand the content of the full article.

In transitioning to the topic of allergy immunotherapy, Nelson[23] reported on the importance of proper dosing for subcutaneous and sublingual allergy immunotherapy. He concluded that, although a wide range of doses are prescribed by U.S. allergists, analysis of available data suggests that effective doses fall within a narrow range and that use of doses one-fifth or one-tenth of the effective doses may sacrifice most or all of the potential efficacy of the treatment.[23] In continuing with the topic of immunotherapy, but as it relates to food allergy, is a report by Kochis *et al.*[24] whose goal was to explore how caregiver opinions shared through social media may influence other caregivers in their decisions about oral immunotherapy for food allergy. The authors observed that caregivers communicate with each other through social media expressing attitudes, logistics, and questions about oral immunotherapy.[24] They suggest that it is important for clinicians to understand how these lay perspectives may help guide clinicians in counseling and engaging caregivers in decision-making.

In continuing with the topic of food allergy is a report by Aydogan *et al.*,[25] who carried out a medical chart review of anaphylaxis cases from 16 pediatric allergy and immunology centers in Turkey, which included data of 227 patients with 266 food-induced anaphylaxis episodes. In addition to characterizing food allergy in this population, the authors found that the majority of anaphylaxis episodes were caused by cow's milk, nuts, and egg. The topic of food allergy is also addressed in a report by Papia *et al.*[26] with regard to the pathogenic role of tropomyosin and the implications of it being classified as a panallergen and its worldwide impact.

This issue's Patient-Oriented Problem Solving (POPS) case presentation explores the differential diagnosis of recurrent pneumonias in a 33-year-old man who presented with hypoxemic respiratory failure. The POPS case presentation is a recurring feature of the ***Proceedings*** which, as per tradition, is written by an allergy/immunology fellow-in-training from one of the U.S. allergy/immunology training programs. The purpose of the POPS series is to provide an innovative and practical learning experience for the allergist/immunologist in-training by using a didactic format of clinical presentation and deductive reasoning. In this issue's POPS, Eddens *et al.*,[27] from the Division of Pulmonary, Allergy and Critical Care Medicine, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, lead the reader through this learning process, which illustrates the complexity of the differential diagnostic process for this clinical presentation and the importance of a detailed history, physical examination, and appropriate laboratory assessment in arriving at a correct diagnosis.

In summary, the collection of articles found within the pages of this issue provides further insight into the intersecting crossroads of inflammation and disease that manifest as allergic, immunologic, and respiratory disorders that afflict patients whom the allergist/immunologist serves. In particular, they exemplify how the complexities of COVID-19, vaccine preventable diseases, allergen immunotherapy, HAE, food allergy, asthma, rhinitis, chronic rhinosinusitis, AD, and immunodeficiency continue to challenge the allergist/immunologist. In keeping with the overall mission of the ***Proceedings***, which is to distribute timely information with regard to advancements in the knowledge and practice of allergy, asthma, and immunology to clinicians entrusted with the care of patients, it is our hope that the articles found within this issue will help foster enhanced patient management and outcomes. On behalf of the Editorial Board, we hope that you are able to make practical use of the diversity of literature offered in this issue of the ***Proceedings.***

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REFERENCES

1. Bellanti JA, Settipane RA. The war on infectious diseases: COVID-19 vaccines and the public: challenges and solutions. Allergy Asthma Proc. 2021; 42:5–7.

2. Bellanti JA, Settipane RA. COVID-19: a continuing challenge for the allergist/immunologist. Allergy Asthma Proc. 2021; 42:263–266.
3. Sitek AN, Ade JM, Chiarella SE, et al. Outcomes among patients with COVID-19 and asthma: a systematic review and meta-analysis. Allergy Asthma Proc. 2021; 42:267–273.
4. Beyaz S, Demir S, Oztop N, et al. Psychological burden of COVID-19 on mild and moderate chronic spontaneous urticaria. Allergy Asthma Proc. 2021; 42:e107–e115.
5. Aksu K, Yesilkaya S, Topel M, et al. COVID-19 in a patient with severe asthma using mepolizumab. Allergy Asthma Proc. 2021; 42:e55–e57.
6. Frenkel LD, Gomez F, Bellanti JA. COVID-19 in children: pathogenesis and current status. Allergy Asthma Proc. 2021; 42:8–15.
7. Bellanti JA, Settipane RA. The challenge of COVID-19 that permeates the practice of allergy/immunology. Allergy Asthma Proc. 2021; 42:1–4.
8. Pitlick MM, Joshi AY. Considerations for asthma management and viral transmission in the era of COVID-19. Allergy Asthma Proc. 2021; 42:93–96.
9. Perlini S, Ciprandi G, Castagnoli R, et al. Eosinopenia could be a relevant prognostic biomarker in patients with coronavirus disease 2019. Allergy Asthma Proc. 2020; 41:e80–e82.
10. Bellanti JA. The role of the allergist/immunologist in the COVID-19 pandemic: a Janus-faced presentation. Allergy Asthma Proc. 2020; 41:397–412.
11. Joshi AY, Mullakary RM, Iyer VN. Successful treatment of coronavirus disease 2019 in a patient with asthma. Allergy Asthma Proc. 2020; 41:296–300.
12. Larenas-Linnemann DE, Ortega-Martell JA, Blandón-Vijil MV, et al. Coronavirus disease 2019, allergic diseases, and allergen immunotherapy: possible favorable mechanisms of interaction. Allergy Asthma Proc. 2021; 42:187–197.
13. Bellanti JA. COVID-19 vaccines and vaccine hesitancy: role of the allergist/immunologist in promotion of vaccine acceptance. Allergy Asthma Proc. 2021; 42:365–367.
14. Arroliga ME, Dhanani K, Arroliga AC, et al. Allergic reactions and adverse events associated with administration of mRNA-based vaccines. a healthcare system experience. Allergy Asthma Proc. 2021; 42:395–399.
15. Frenkel LD. The global burden of vaccine-preventable infectious diseases in children less than 5 years of age: Implications for COVID-19 vaccination. How can we do better? Allergy Asthma Proc. 2021; 42:375–385.
16. Bostan OC, Tuncay G, Damadoglu E, et al. Effect of COVID-19 on hereditary angioedema activity and quality of life. Allergy Asthma Proc. 2021; 42:403–408.
17. Arsenault S, Hoofman J, Poowuttikul P, et al. Sustained decrease in pediatric asthma emergency visits during the first year of the COVID-19 pandemic. Allergy Asthma Proc. 2021; 42:400–402.
18. Sarioglu N, Yalcın AD, Sahin F, et al. Does vitamin D deficiency in asthma affect clinical and functional parameters? A Turkish multicenter study. Allergy Asthma Proc. 2021; 42:e152–e158.
19. Zhu WJ, Liu Y, Wang G, et al. Interaction effects of asthma and rhinitis control on work productivity and activity impairment: a cross-sectional study. Allergy Asthma Proc. 2021; 42:409–416.
20. Xu H, Gao Y, Xie Y, et al. Bronchial provocation test measured by using the forced oscillation technique to assess airway responsiveness. Allergy Asthma Proc. 2021; 42:e127–e134.
21. Spergel JM, Blaiss MS, Lio P, et al. Efficacy and safety of crisaborole in patients with mild-to-moderate atopic dermatitis and other atopic comorbidities. Allergy Asthma Proc. 2021; 42:425–431.
22. Patel GB, Kudlaty EA, Guo A, et al. Impact of type 2 targeting biologics on acute exacerbations of chronic rhinosinusitis. Allergy Asthma Proc. 2021; 42:417–424.
23. Nelson HS. How important is proper dosing for subcutaneous and sublingual allergy immunotherapy? Allergy Asthma Proc. 2021; 42:368–377.
24. Kochis S, Keet C, Claus LE, et al. Caregiver perceptions and attitudes associated with oral immunotherapy on social media. Allergy Asthma Proc. 2021; 42:432–438.
25. Aydogan M, Topal E, Yakıcı N, et al. Food-induced anaphylaxis in early childhood and factors associated with its severity. Allergy Asthma Proc. 2021; 42:e135–e144.
26. Papia F, Bellia C, Uasuf CG. Tropomyosin: a panallergen that causes a worldwide allergic problem. Allergy Asthma Proc. 2021; 42:e145–e151.
27. Eddens T, Meerbeke SV, Zhang M, et al. A 33-year-old man with a history of recurrent pneumonia presenting with hypoxemic respiratory failure. Allergy Asthma Proc. 2021; 42:439–442. □